**A Tool for Pixelated Graph Representations**

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**Pixelated Graph Representations**

At GD 2013 in Bordeaux

Visibility Representation (VR)

- a planar graph
- its visibility representation

We can model many other problems in this way.

- 1-Dimensional:
  - pathwidth
  - bondwidth
  - s^2-smartfences
- 2-Dimensional:
  - bar k-VR
  - beauty

We can model many other problems in this way.

We want to minimize the height of a visibility representation.

**Back in Karlsruhe**

Can you write a program that lets the user load a graph, runs the ILP and displays the resulting drawing?

The user must be able to select constraints out of a predefined list.

It should be easy for the user to specify custom constraints.

The “Pixelated Graphs” Tool **PIGRA**

You can now select a subset of predefined constraints.

You can add your own constraints.

We can formulate ILP constraints that force the pixels to form a VR.

Restrict the height of the VR to restricting the grid-height.

**The resulting drawing**

You can select the constraints required for a visibility representation.

You can easily change the constant k in the GUI.

The resulting drawing is the set of pixels where every edge may overlap its endpoints.

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**Based on:** Using ILP/SAT to Determine Pathwidth, Visibility Representations, and other Grid-Based Graph Drawings

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